11-08-00

A

HAYES, SOLOWAY, HENNESSEY, GROSSMAN & HAGE, P.C.
175 CANAL STREET
MANCHESTER, NH
03101-2335 U.S.A.
TEL 603-668-1400
FAX 603-668-8567
FAX 603-668-0104

DOCKET NO: MORRISON 00.02

DATE: November 7, 2000

COMMISSIONER OF PATENTS & TRADEMARKS
WASHINGTON, D.C. 20231

Dear Sir:

Transmitted herewith for filing is the patent application of:

INVENTOR: Mark D. MORRISON

FOR: CABLE RETRACTOR FOR AN ELECTRONIC DEVICE

Enclosed are the following:

- Specification: 14 pages; Claims: 8 pages; Abstract: 1 page
- Declaration and Power of Attorney
- Sheet(s) of drawings 8 pages
- A verified statement to establish small entity status

The filing fee has been calculated as shown below:

		SMALL ENTITY	LARGE ENTITY
BASIC FEE:		$355.00	$710.00
TOTAL CLAIMS:	43 - 20 = 23	x 9 = $207.00	x 18 = $
INDEPENDENT CLAIMS:	9 - 3 = 6	x 40 = $240.00	x 80 = $
MULT. DEPEND. CLAIMS:		+ 135 = $	+ 270 = $
TOTAL:		$802.00	$710.00

- Please charge the Credit Card in the amount of $802.00 as indicated on Form PTO-2038 enclosed.

The Commissioner is hereby authorized to charge any additional filing fees required under 37 CFR 1.16 or credit any overpayment to Deposit Account No. 08-1391.

Steven J. Grossman
Attorney for Applicant
Reg. No. 35,001

clm

CERTIFICATE OF EXPRESS MAILING

"Express Mail" Mailing Label No: **EL518278694US**
Date of Deposit: **NOVEMBER 7, 2000**

I hereby certify that this paper and the papers listed thereon are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above, and is addressed to BOX PATENT APPLICATION, Assistant Commissioner of Patents, Washington, DC 20231.

Signature of person mailing: Carol McClelland

Name of person mailing: Carol McClelland

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) AND 1.27 (b)) - INDEPENDENT INVENTOR

Docket No. MORRISON 00.02

Serial No.	Filing Date	Patent No.	Issue Date
	NOVEMBER 7, 2000		

Applicant/ Patentee: MARK D. MORRISON

Invention:

CABLE RETRACTOR FOR AN ELECTRONIC DEVICE

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled above and described in:

- ☒ the specification to be filed herewith.
- ☐ the application identified above.
- ☐ the patent identified above.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ No such person, concern or organization exists.
- ☐ Each such person, concern or organization is listed below.

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities (37 CFR 1.27)

FULL NAME _____

ADDRESS _____

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

FULL NAME _____

ADDRESS _____

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

FULL NAME _____

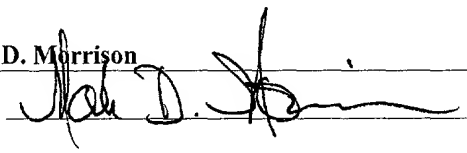
ADDRESS _____

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

FULL NAME _____

ADDRESS _____

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization



I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF INVENTOR **Mark D. Morrison**
SIGNATURE OF INVENTOR DATE: 11/7/00

NAME OF INVENTOR
SIGNATURE OF INVENTOR DATE:

NAME OF INVENTOR
SIGNATURE OF INVENTOR DATE:

NAME OF INVENTOR
SIGNATURE OF INVENTOR DATE:

NAME OF INVENTOR
SIGNATURE OF INVENTOR DATE:

NAME OF INVENTOR
SIGNATURE OF INVENTOR DATE:

NAME OF INVENTOR
SIGNATURE OF INVENTOR DATE:

NAME OF INVENTOR
SIGNATURE OF INVENTOR DATE:

NAME OF INVENTOR
SIGNATURE OF INVENTOR DATE:

NAME OF INVENTOR
SIGNATURE OF INVENTOR DATE:

CABLE RETRACTOR FOR AN ELECTRONIC DEVICE

Field of the Invention

The present invention relates to a cable retraction assembly for use in a device such as a cell phone, or other related communications device or any device for delivering audio information.

Background of the Invention

Portable electronic devices such as AM/FM radios, cassette player, CD players, and MP3 players may utilize an earpiece at the end of a flexible cable to allow the user to listen to the radio or prerecorded music without disturbing surrounding people. Some earpieces also incorporate a microphone for use with a wireless phones. These earpieces come in many different sizes and configurations and are available at different price points and quality levels. Many users attach these portable electronic devices about their waistline and listen through the earpiece. The earpiece is coupled to the portable electronic devices with a predetermined length of cable.

A problem with these earpieces is that no one predetermined length of cable is right for each user and activity. In order to ensure there is enough cable length for every person and activity, the manufacturers typically provide an overly long cable. If a user finds that the length of cable is too long for his or her activity, the user must somehow reduce the amount of slack. The user can eliminate the slack by wrapping a portion of the cable around the electronic device until the appropriate length of cable remains or the user can coil the cable leaving an appropriate length of cable and secure the coil with tape or string. Both of these known methods do not allow the user the freedom to easily adjust

the length of dispensed cable. The winding of the cable around the electronic device or into a coil can stress the wires inside the cable that may eventually lead to failure.

When the earpiece is not in use, the user must find a convenient location to store the earpiece and the associated length of cable. Often the user stores the earpiece in his or her pocket. If the earpiece is used in conjunction with a wireless phone and the user receives an incoming call, the user must quickly locate the earpiece and connect it to the phone in order to answer the call.

U.S. Patent 4, 989,805 entitled "Retractable Reel Assembly for Telephone Extension Cable" discloses a housing, which is adapted to be mounted to a wall in proximity to a telephone or telephone jack for utilization with either wall, mounted or table mounted telephones respectively. This device has a ratchet for selectively restraining rotation of the reel in one direction. The user can reel out an appropriate length of cable and then slowly release the cable to enable the locking mechanism. To recoil the cable, the user tugs on the cable and releases. The spring inside the housing then pulls the cable into the housing. A problem with this type of locking mechanism is that the mechanism is often difficult to engage. Another problem with a system like this is if the user accidentally tugs on the cable and releases, the cable will be uncontrollably recoiled into the housing. A further problem with systems like this is that the amount of dispensed cable is not infinitely selectable because the ratchet mechanism only has a fixed quantity of selectable positions.

A cable retractor for use with a cell phone is available from Safetone, Inc. of Fremont, California. The cable retractor includes an enclosure with a clip for attaching to

a user's belt. An earpiece with a speaker is located at the end of a retractable cable. On the cable several inches from the speaker is a microphone. The retractor can be electrically connected to a cell phone with a separate, non-retractable cable. A drawback to this retractor is the cable retractor is a separate physical enclosure that cannot be mechanically coupled to the cell phone and the retractor takes up additional space on a user's belt or about their waistline. The non-retractable cable between the cell phone and the retractor can also get in the user's way.

Summary of the Invention

The present invention is intended to overcome these disadvantages. Accordingly, it is an object of the present invention to provide a cable retractor that will allow the user to extract any length of cable quickly and easily.

It is a further object of the present invention to provide a cable retractor that can be coupled mechanically and electrically to an electronic device.

It is yet a further object of the present invention to provide a cable retractor that can be coupled to an existing electronic device and allow the electronic device to recharge without having to remove the cable retractor.

It is still a further object of the present invention to provide a cable retractor that is capable of signaling a coupled communications device to pickup an incoming call when the cable and/or speaker is extended.

It is still a further object of the present invention to provide a cable retractor that is capable of silencing an audible alarm signaling an incoming call when the cable is extended.

Brief Description of the Drawings

Figure 1 is a front view of a wireless phone;

Figure 2 is a bottom view of the cordless phone of Figure 1 and various peripherals;

Figure 3 is front view of a first embodiment of a cable retractor assembly consistent with the present invention;

Figure 3A is a front view of the cable retractor assembly of Figure 3 coupled to the wireless phone of Figure 1;

Figure 3B is a side view of a second embodiment of a cable retractor assembly consistent with the present invention coupled to the wireless phone of Figure 1;

Figure 4 is a first section view of the cable retractor assembly taken along line 4-4 of Figure 6;

Figure 5 is a second section view of the cable retractor assembly taken along line 4-4 of Figure 6;

Figure 6 is a bottom view of the cable retractor assembly of Figure 3;

Figure 7 is a first right side view of the cable retractor assembly of Figure 3;

Figure 8 is a second right side view of the cable retractor assembly of Figure 3;

Figure 9 is a sectional view of the cable retractor assembly taken along line 9-9 of Figure 3;

Figure 10 is a partial section view of a cable retractor consistent with the present invention; and

Figure 11 is a top view of a first embodiment of a biasing member consistent with

the present invention.

The above and other objects, feature, and advantages of the present invention will be apparent in the following Detailed Description of the Preferred Embodiments thereof when read in conjunction with the appended drawings wherein the same reference numerals denote the same or similar parts throughout the several views.

Detailed Description of the Preferred Embodiments

Figure 1 shows a front view of a wireless phone 10 with a speaker 22 and a microphone 24. Typically, the user holds the phone 10 in one hand, listens through the speaker 22, and talks into the microphone 24. The phone 10 can also be used in conjunction with a combined speaker/microphone earpiece 14 (see Figure 2) coupled at the distal end of a cable 12 or 12'. The combined speaker/microphone earpiece 14 can be inserted in a user's ear. The combined speaker/microphone earpiece 14 picks up the sound of the user's voice from the vibrations of their jawbone. A combined speaker/microphone earpiece is available from M-squared Inc. under the name EARHUGGER®. The proximal end of the cable 12 may include a jack 20 for insertion into a receptacle 16 in the base of the phone 10 as shown in Figure 2. Alternatively, the jack 20 can be coupled to the phone 10 using a connector 26. The proximal end of the cable 12' may include a connector 26' for coupling to the phone 10

Conductors enclosed in the cables 12 and 12' extend from the proximal end to the distal end. The combined speaker/microphone earpiece14 allows the user to carry on a hands free conversation while the phone is secured about the user's waist.

Alternatively, a speaker earpiece 14A can be located at the distal end of the cable

12 or 12' and a separate microphone 32 can be located along the cable a spaced distance from the speaker earpiece 14A.

Also located on the base of the phone 10 is a plurality of terminals 18. These terminals 18 allow the battery to be charged when the phone 10 is inserted in a charger, allow the user to insert the phone 10 in a cradle for use in a hands-free car phone set up, allow the phone to send and receive data to other devices, or allow the combined speaker/microphone earpiece 14 or separate speaker earpiece 14A and microphone 32 to be coupled to the phone 10 using connector 26 or 26'. The connectors 26 and 26' may include a release mechanism 62 and 62' to allow the connector to be released from the phone 10. The connectors 26 and 26' have a pair of mechanical fasteners 30 for securing the connector 26 and 26' to the phone 10. The mechanical fasteners 30 fit in openings 28 in the base on phone 10.

The phone 10 can be charged using either an AC/DC transformer 54 or a DC cigarette lighter adaptor 58. The transformer 54 and the adaptor 58 can be connected to the phone 10 with jack 52 and 56 respectively. The jacks 52 or 56 can be inserted in to a receptacle 46 in the base of the phone 10. The location of the receptacles 16 and 46 and the location and quantity of terminals 18 may vary from manufacture to manufacture. A problem with the combined speaker/microphone earpiece 14 being located on a cable 12 as mentioned above is that the length of cord is rarely the length the user desires and there is no convenient place to store the cable when not in use.

Figure 3 shows a front view of a first embodiment of a cable retractor assembly 100 coupleable to a portable electronic device. The portable electronic devices may be

one of an AM/FM radio, a CD player, an MP3 player, a cassette player, a personal digital assistant, a computer, a cordless phone, a radiophone, and a cellular phone.

Figure 3A shows the cable retractor assembly 100 coupled to the wireless phone 10 of Figure 1. The cable retractor assembly 100 is shown extending generally downward from the base of the phone 10.

Figure 3B shows a second embodiment of a cable retractor assembly 100' coupled to wireless phone 10 of Figure 1, the cable retractor assembly extending generally rearward of the phone 10. The cable retractor may optionally include a clip 190 for securing the retractor and phone to a user's belt or waistline.

As shown in Figures 3, 4, 5, and 6, the cable retractor assembly 100 is shown in an enclosure 102. The cable retractor assembly 100 comprises a plurality of terminals 118 for electrically coupling the cable retractor assembly 100 to a portable electronic device, a printed circuit board 150 with conductive traces for coupling various electrical and mechanical components including the terminals 118 and 18B, a rotatable reel 120 for reeling a length of a cable 112 with a combined speaker/microphone earpiece114 or speaker earpiece 114A and microphone 132, a biasing member 246 (see Figure 11) for causing the reel 120 to rotate in a predetermined direction, a combined speaker/microphone earpiece 114, a locking mechanism 106 for resisting winding and unwinding of the cable 112, a pair of mechanical fasteners 130 for securing the enclosure 102 to a portable electronic device, and a release mechanism 162 for releasing the cable retractor from a portable electronic device.

The mechanical fasteners 130 can be designed to give the user the ability to

repeatably couple and decouple the cable retractor 100 to a portable electronic device. Many different types of suitable mechanical fasteners can be used to couple these components together. Mechanical fasteners are well known to those in art, a detailed explanation will therefore be omitted. In the embodiment shown in Figure 3, the plurality of terminals 118 are capable of being coupled to the plurality of terminals 18 (see Figure 2) on the base of phone 10. The mechanical fasteners 130 fit in openings 28 (see Figure 2) in the base of phone 10. An optional jack 148 may be electrically coupled through the printed circuit board 150 to an optional receptacle 146 located on the base of the retractor 100. The electrically coupled jack 148 and the receptacle 146 allow the user to charge or power the phone 10 without having to remove the retractor 100 from the phone 10. In an alternative embodiment, the cable retractor and the portable electronic may share a common enclosure (i.e. not capable of being decoupled). The cable retractor assembly 100 may further optionally comprise a microphone 110 electrically coupled to the plurality of terminals 118 through printed circuit board 150.

A molded cradle 116 may be formed in the enclosure 102 to hold the combined speaker/microphone earpiece 114 or speaker earpiece 114A when not in use. The earpiece 114 can be secured in the cradle 116 with the locking mechanism 106. The earpiece is coupled to the plurality of terminals 118 through a cable 112 that is wrapped around the reel 120. The locking mechanism 106 may include a contoured grip portion 108. The locking mechanism 106 is shown protruding from the side of the enclosure 102. Alternatively, the locking mechanism can be designed not to protrude from the side of the enclosure 102.

Alternatively, the cable retractor assembly comprises an actuator 172. The actuator may be electrically coupled though the printed circuit board to terminal 118 on the topside of the enclosure 102. In the event the coupled wireless phone 10 receives an incoming call, the user can simply actuate the actuator 172 to pick up the incoming call.

Alternatively, the cable retractor assembly comprises a sensor 176 for sensing movement of the cable 112 or rotation of reel 120. The sensor may be a Hall effect sensor or an optical sensor secured to a printed circuit board 150. Methods for sensing motion are well known in the art. When motion or rotation is sensed, the coupled wireless phone can be signaled through terminals 118. In the event the coupled wireless phone 10 receives an incoming call, the sensed movement or rotation can signal the wireless phone to pick up the incoming call.

Alternatively, the cable retractor comprises an actuator 174 coupled to the printed circuit board that may be actuated by the earpiece 114 or 114A when the earpiece is inserted in a cradle 116 on the enclosure 102. When the state of the actuator 174 is changed by removal of the earpiece from the cradle, the coupled wireless phone can be signaled through terminals 118 to pick up an incoming call.

Alternatively, the cable retractor assembly 100 may monitor whether the combined speaker/microphone earpiece 114 or speaker earpiece 114A and microphone 132 are extended outside the enclosure 102. When the cable retractor assembly 100 is coupled to a wireless phone or built into a wireless phone, the wireless phone can be programmed to disable the ringer on the phone whenever the combined speaker/microphone earpiece 114 or speaker earpiece 114A and microphone 32 is

extended. The phone would alert the user of an incoming call through the combined speaker/microphone earpiece 114 or speaker earpiece 114A. Alternatively, the wireless phone can be programmed to signal the user by causing a vibrator in the enclosure to vibrate whenever there is an incoming call and the combined speaker/microphone earpiece 114 or speaker earpiece 114A and microphone 32 are extended.

By having the cable retractor electrically coupleable to the wireless phone, the wireless phone can be programmed to respond differently depending on the state of the combined speaker/microphone earpiece 114 or speaker 114A and microphone 32.

In the embodiment shown in Figure 4, the earpiece 114 or 114A is secured in the enclosure 102 by the locking mechanism 106. To decouple the earpiece from the enclosure 102, the user can urge the locking mechanism 106 downward. Alternatively, the enclosure 102 can be designed to allow the earpiece to snap in to the enclosure without the need for the locking mechanism 106.

In the embodiment shown in Figure 5, the combined speaker/microphone earpiece 114 is shown tethered to the cable retractor assembly 100 by cable 112. Alternatively, the speaker earpiece 114A and microphone 132 can be tethered to the cable retractor assembly 100.

As shown in Figure 7, the combined speaker microphone earpiece 114 or speaker earpiece 114A can be decoupled from the enclosure 102 by exerting force on the earpiece with the operators fingers 184 and 186 and pulling away from the enclosure 102. After the user has decoupled the earpiece from the enclosure 102 and unreeled the desired length of cable 112 by urging the earpiece away from the enclosure 102, the user can urge

the locking mechanism 106 upward to the position shown in Figure 8. The cable 112 extends from the reel 120 along a passageway 162 and exits the enclosure 102 through an opening 160. The passageway 162 and the opening 160 can be sized to allow the microphone 132 to be retracted inside the enclosure 102 when used with the speaker earpiece 114A. By urging the locking mechanism 106 upward, the locking mechanism 106 compresses the cable 112 against the side of opening 160. An alternative locking mechanism can resist motion of the cable 112 by resisting rotational motion of the reel 120.

In the embodiment shown in Figures 4 and 5, the reel 120 is urged to rotate clockwise by a biasing member 246 (shown in Figure 10 and 11). In this embodiment, the biasing member 246 constantly urges the reel to rotate. Alternatively, the combined speaker/microphone earpiece 114 or speaker earpiece 114A can be secured in a cradle on the exterior of the enclosure 102. The earpiece and the cradle can be designed to allow the earpiece to snap into the cradle. Alternatively, the earpiece and the cradle can be designed to require that the earpiece be rotated, for example 90°, prior to removal from the cradle.

In an alternative embodiment, the cable retractor assembly 100 includes a ratchet and pawl mechanism and a release mechanism 180. As the user urges the combined earpiece/mouthpiece 114 or speaker earpiece 114A from the enclosure 102, the ratchet prevents the cable 112 from being retracted into the enclosure 102 when the user releases the earpiece or the cable 112. By actuating the release mechanism 180, the cable 112 is retracted on to the reel 120. Many different types of suitable ratchet mechanisms and

release mechanisms can be coupled to the reel 120 or cable 112. Ratchet mechanisms and release mechanisms are well known to those in the art, a detailed explanation will therefore be omitted. U.S. Patent 6,059,213 entitled Reel Device discloses a ratchet and pawl mechanism and a release mechanism suitable for use in the present invention. The '213 patent is incorporated herein by reference in its entirety.

As shown in Figure 6, the cable retractor 100 may include a plurality of terminals 18B and openings 28A on its base. The terminals 18B can be electrically coupled to the terminal 118 located on the topside of the enclosure 102 through the printed circuit board 150. These terminals on the base of the cable retractor allow the portable electronic device to be coupled with other devices without having to remove the cable retractor 100 from the portable electronic device. The terminals 18B allow the battery in the portable electronic device to be charged when the phone 10 is inserted in a charger, allow the user to insert the phone 10 in a cradle for use in a hands-free car phone set up, and allow the phone to send and receive data to other devices. Openings 28A allow other devices to be mechanically coupled to the cable retractor assembly 100.

A detailed cross-sectional view of the cable retractor assembly 100 consistent with the present invention is shown in Figure. 9. A reel 120 is rotatably mounted within a cavity 232 within the housing 102. More specifically, the side 231 of the reel 120 is provided with a hole 234 acting as a sleeve, which receives a hub 236 extending inwardly from side 216 of the housing 102. A screw 240 passes through a hole 280 in the side 214 of housing 102 into the hub 236 to provide a pivotal axis for rotation of the reel 120.

The reel 120 is constructed with a spool wall 244, preferable circular in shape,

which together with the outer surface of the hub 236 defines a circular cavity 242. A spiral spring connector 246 is disposed within the cavity 242. As shown in Figures 10 and 11, a first end of the spiral spring connector 246 is coupled to the reel 120 and the second end of the spiral spring connector 246 is coupled to the hub 236. Specifically, an outer end of the spiral spring connector 246 passes through an opening 248 in the spool wall 244, and connects the retractable cable 112 at electrical connection 250. For example, the end of the spiral spring connector 246 can be soldered, as shown, to the end of the retractable cable 112. An opposite end of the spiral telephone connector 246 is connected to the housing 102. Specifically, an inner end of the spiral spring connector 246 is bent at approximately ninety (90) degrees and fits into a slot 245 in the hub 236, as shown in Figures 10 and 11, to anchor that end of the spring from movement within the housing 102 during a winding operation. The conductors in the spiral spring connector 246 are coupled to the printed circuit board 150 by connector 262.

The spiral spring connector 246 is shown removed from the cavity 242 of the reel 120 in Figure 11. The spiral spring connector 246 is shown in an unwound mode with space between adjacent surfaces thereof. Upon rotating of the reel 120 during use, the spiral spring connector becomes wound tightly with adjacent surfaces thereof coming into contact with each other. The spiral spring connector 246 provides means for retracting the cable 112 by winding the reel 120 when the cable 112 is at least partially extracted for the cable retractor 100.

A first embodiment of the construction of the spiral spring connector according to the present invention is as follows. Two (2) copper telephone wires are each made from a

flat sheet of copper of 0.062 inch in width and 3 mils (1/1000 inch) in thickness. The two (2) telephone wires are arranged parallel and side-by-side with a spacing of 100 centers, and then laminated between two (2) pieces of MYLAR of 2 mils thickness with a hot glue adhesive sprayed on the inside surfaces of the MYLAR prior to the lamination step. To this assembly a laminating pressure is applied which causes the copper wires to adhere to the MYLAR, which in the assembly acts as an insulator. Additional conductor may be provided if necessary. U.S. Patent 5,241,593 entitled Telephone and Telephone Cord Retraction Device and Method of Making discloses a suitable retractor coil for use in the present invention, the '593 patent is herein incorporated by reference in its entirety.

It should be understood that, while the present invention has been described in detail herein, the invention can be embodied otherwise without departing from the principles thereof, and such other embodiments are meant to come within the scope of the present invention as defined in the following claim(s):

CLAIMS

1. A cable retractor assembly, comprising:

an enclosure for housing a rotatable reel, the enclosure having a first side and an opposing second side,

a biasing member coupled to the reel and the enclosure for urging the reel to rotate in a predetermined direction,

a first plurality of terminals disposed on the first side of the enclosure, and a second plurality of terminals disposed on the second side of the enclosure, the first plurality of terminals electrically coupled to the second plurality of terminals.

2. The cable retractor of claim 1, wherein the first plurality of terminals is coupleable to a battery charger and the second plurality of terminals is coupleable to an electronic device.

3. The cable retractor of claim 2, wherein the electronic device is a wireless phone.

4. The cable retractor of claim 3, wherein the wireless phone is a cellular phone.

5. The cable retractor of claim 1, further comprising a length of cable having a first end and a second end, the first end of the cable coupled to the rotatable reel and the second end of the cable comprising a speaker.

6. A portable communications device, comprising:

a cable retractor for retracting a coupled cable,

a sensor for sensing motion of the coupled cable,

a circuit for determining the presence of an incoming call,

a micro controller programmed to pick up the incoming call when the sensor senses motion.

7. The cable retractor of claim 6, wherein the sensor is a Hall effect sensor.

8. The cable retractor of claim 6, wherein the sensor is an optical sensor.

9. The cable retractor of claim 6, further comprising a speaker coupled to cable a first spaced distance from the sensor.

10. The cable retractor of claim 9, further comprising a microphone coupled to the cable a second spaced distance from the sensor.

11. A portable communications device, comprising:

a cable retractor for retracting a coupled cable onto a rotatable reel,

a sensor for sensing rotation of the reel,

a circuit for determining the presence of an incoming call,

a controller programmed to pick up the incoming call when the sensor senses motion.

12. The cable retractor of claim 11, wherein the sensor is a Hall effect sensor.

13. The cable retractor of claim 11, wherein the sensor is an optical sensor.

14. The cable retractor of claim 11, further comprising a speaker coupled to cable a first spaced distance from the sensor.

15. The cable retractor of claim 14, further comprising a microphone coupled to the cable a second spaced distance from the sensor.

16. A method for picking up an incoming call on a communications device, comprising the steps of;

receiving a signal of an incoming call,

monitoring a motion sensor, and

picking up the incoming call when the sensor senses motion.

17. The method of claim 16, wherein the communications device is a wireless phone.

18. The method of claim 17, wherein the communications device is a cellular phone.

19. The method of claim 16, wherein the picking up of the incoming call couples the incoming call to a speaker.

20. The method of claim 16, wherein the motion sensor senses motion of a cable.

21. The method of claim 16, wherein the motion sensor senses motion of a rotatable reel.

22. A cable retractor assembly coupleable to a communications device, comprising:

an enclosure for housing a rotatable reel,

a biasing member coupled to the reel and the enclosure for urging the reel to rotate in a predetermined direction, and

an actuator coupled to the enclosure to signal the communications device to pick up an incoming call.

23. The cable retractor assembly of claim 22, wherein the communications device is a wireless phone.

24. The cable retractor assembly of claim 22, wherein the communications device is a cellular phone.

25. The cable retractor assembly of claim 22, further comprising a terminal for coupling the signal to the coupleable communications device.

26. The cable retractor assembly of claim 22, further comprising a speaker coupled to a cable for generating sound waves, the cable coupled to the reel.

27. A portable communications device, comprising:

a communications circuit for sending and receiving wireless communications signals,

a cable retractor assembly for retracting a coupled cable, the cable comprising a first end and a second end, the first end coupled to the communications circuit and the second end comprising a speaker, and

an enclosure for housing the communications circuit and the retractor.

28. The portable communications device of claim 27, further comprising a microphone coupled to the cable a spaced distance from the speaker.

29. The portable communications device of claim 28, further comprising an enclosure for housing the speaker and a microphone.

30. A cable retraction assembly, comprising:

a reel rotatable about an axis for the winding and unwinding of a cable, the cable

having at least two electrical conductors,

a biasing member coupled to the reel for urging the reel to rotate in a first direction; and

a force applicator for resisting winding and unwinding of the cable.

31. The cable retraction assembly of claim 30, further comprising a speaker coupled to the cable for generating sound waves.

32. The cable retraction assembly of claim 31, further comprising a microphone coupled to the cable for detecting sound waves.

33. The cable retraction assembly of claim 30, wherein the enclosure is detachably coupleable to an electronic device.

34. The cable retraction assembly of claim 33, wherein the electronic device is a portable communications device.

35. A portable electronic device, comprising:

an electrical circuit capable of generating signals,

a cable having a first end and a second end, the first end coupled to the electrical circuit,

a speaker disposed at the second end of the cable for converting the signals into

sound waves,

a cable retractor comprising a reel rotatable about an axis for the winding and unwinding of the cable, the cable having at least two electrical conductor,

a biasing member coupled to the reel for urging the reel to rotate in a first direction, and

a moveable force applicator for resisting winding and unwinding of the cable.

36. The portable electronic device of claim 35, further comprising a transceiver for transmitting and receiving data.

37. The portable electronic device of claim 36, wherein the transceiver operates at radio frequencies.

38. The portable electronic device of claim 35, further comprising a microphone couple to the cable for detecting sound waves.

39. The portable electronic device of claim 35, further comprising an enclosure for housing the electrical circuit, the reel, the biasing member, the force applicator, and a portion of the cable.

40. The portable electronic device of claim 35, wherein the portable electronic device is a selected one of a AM/FM radio, a CD player, an MP3 player, a cassette player, a

personal digital assistant, a computer, a cordless phone, a radio phone, and a cellular phone.

41. A cable retractor, comprising;

an enclosure mechanically coupleable to a portable electronic device,

a rotatable reel,

a biasing member secured to the enclosure and the reel to urge the reel to rotate in a predetermined direction,

a length of cable having a first end and a second end, the first end coupled to the reel and the second end having a speaker coupled thereto,

a plurality of terminals secured to the enclosure, the terminals electrically coupled to the first end of the cable and electrically coupleable to the portable electronic device.

42. The cable retractor of claim 41, further comprising a microphone couple to the cable for detecting sound waves.

43. The cable retractor of claim 41, wherein the portable electronic device is a selected one of a AM/FM radio, a CD player, an MP3 player, a cassette player, a personal digital assistant, a computer, a cordless phone, a radio phone, and a cellular phone.

ABSTRACT

A cable retractor assembly is capable of retracting a cable onto a rotatable reel. The rotatable reel being urged to rotate in a predetermined direction by a biasing force. A moveable actuator when located in a first position is capable of overcoming the biasing force that urges the cable to be wound onto the reel. When the moveable actuator is in a second position, the moveable actuator does not impede the biasing force. A user desiring a length of cable to be unreeled can move the actuator to the second position, extract the desired length of cable by pulling on the cable in excess of the biasing force, and then move the actuator into the first position thereby preventing the cable from being retracted. The cable having conductors that transmit signals from an electrical circuit coupled to a first end of the cable to a speaker located at a second end of the cable. The retractor assembly may be integrated into or detachably secured to a portable electronic device. The retractor assembly allows the user to easily adjust the length of cable between the speaker and the electronic device. A sensor within the cable retractor assembly can detect when the reel rotates or the cable is extracted and thereby signal a coupled communications device to pick up an incoming call. The cable retractor assembly further comprises a pick-up actuator when actuated signals a coupled communications device to pick up an incoming call. The cable retractor comprising terminals to allow a coupled communications device to communicate with other electronic devices without having to decouple the retractor from the communications device.

Figure 1

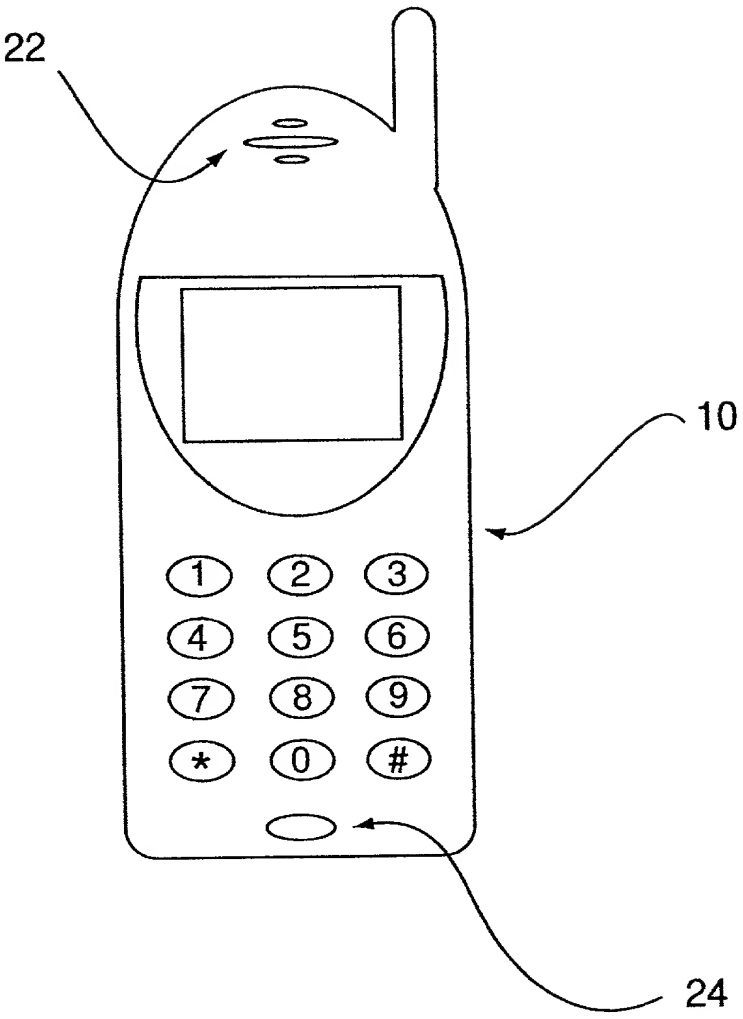


Figure 2

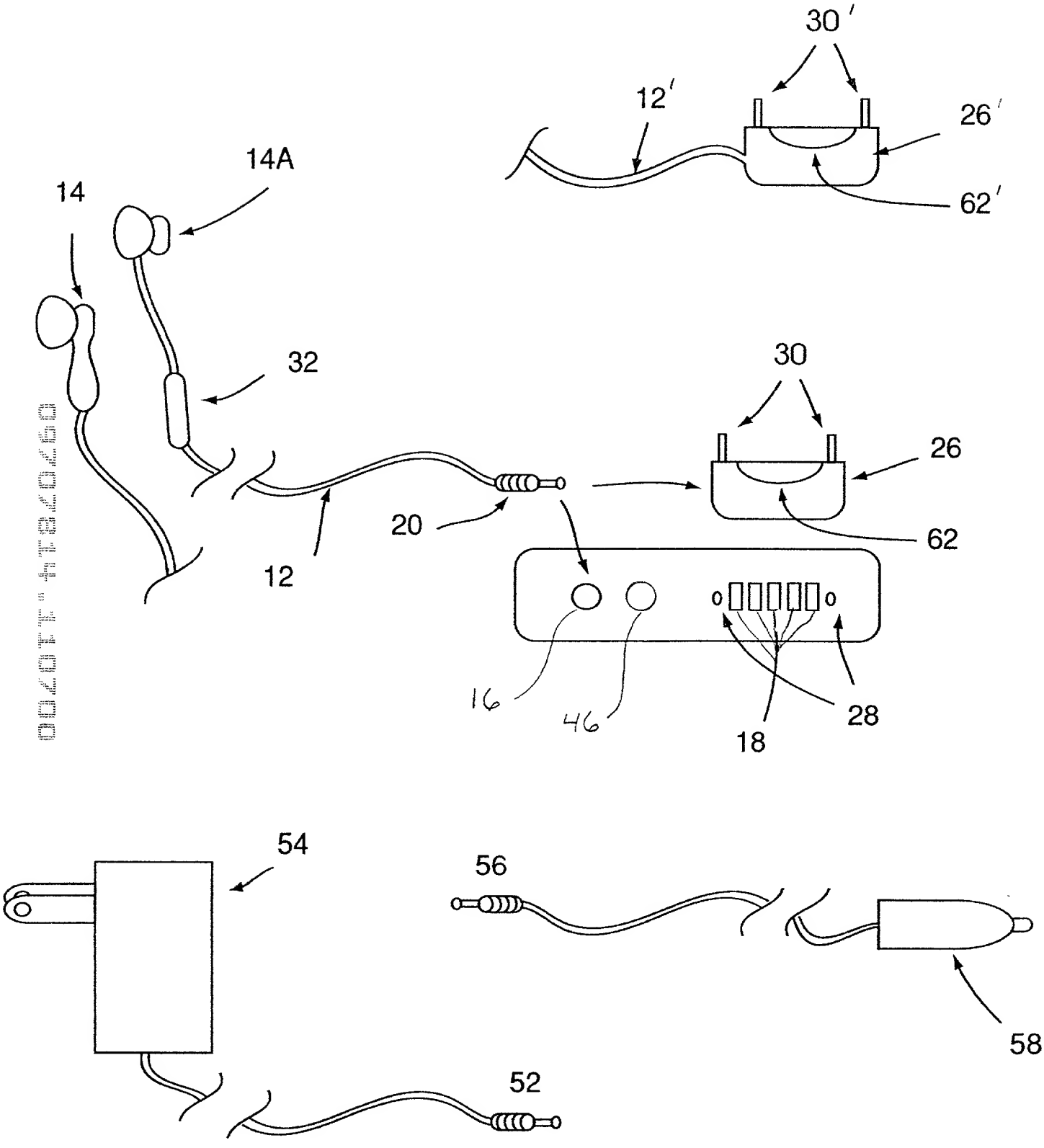


Figure 3

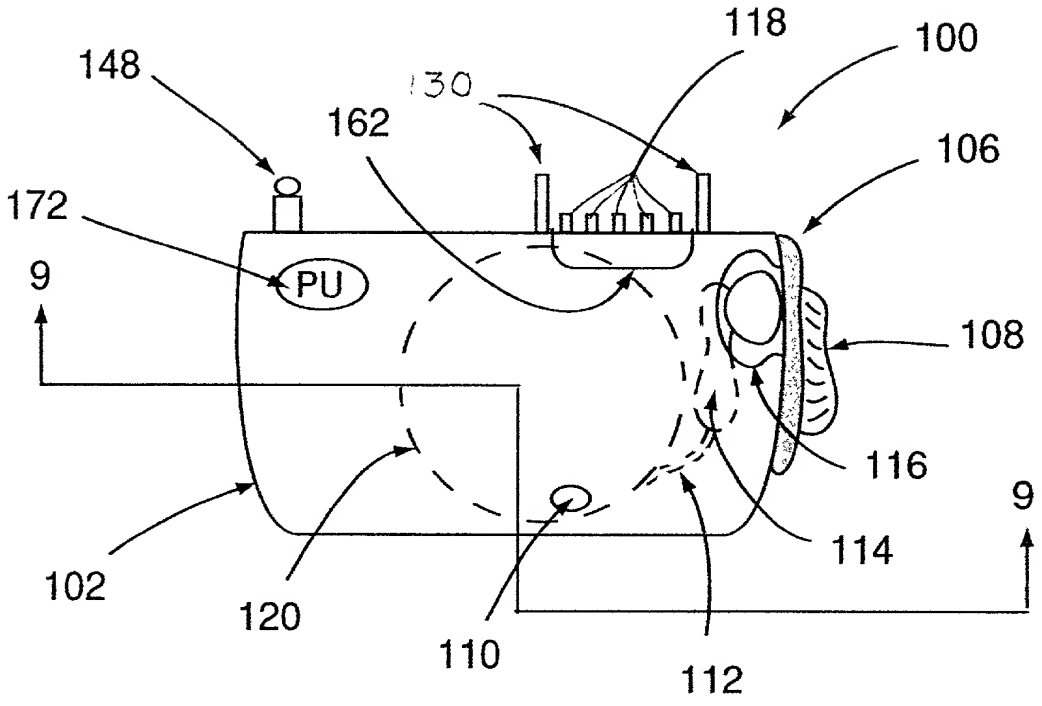
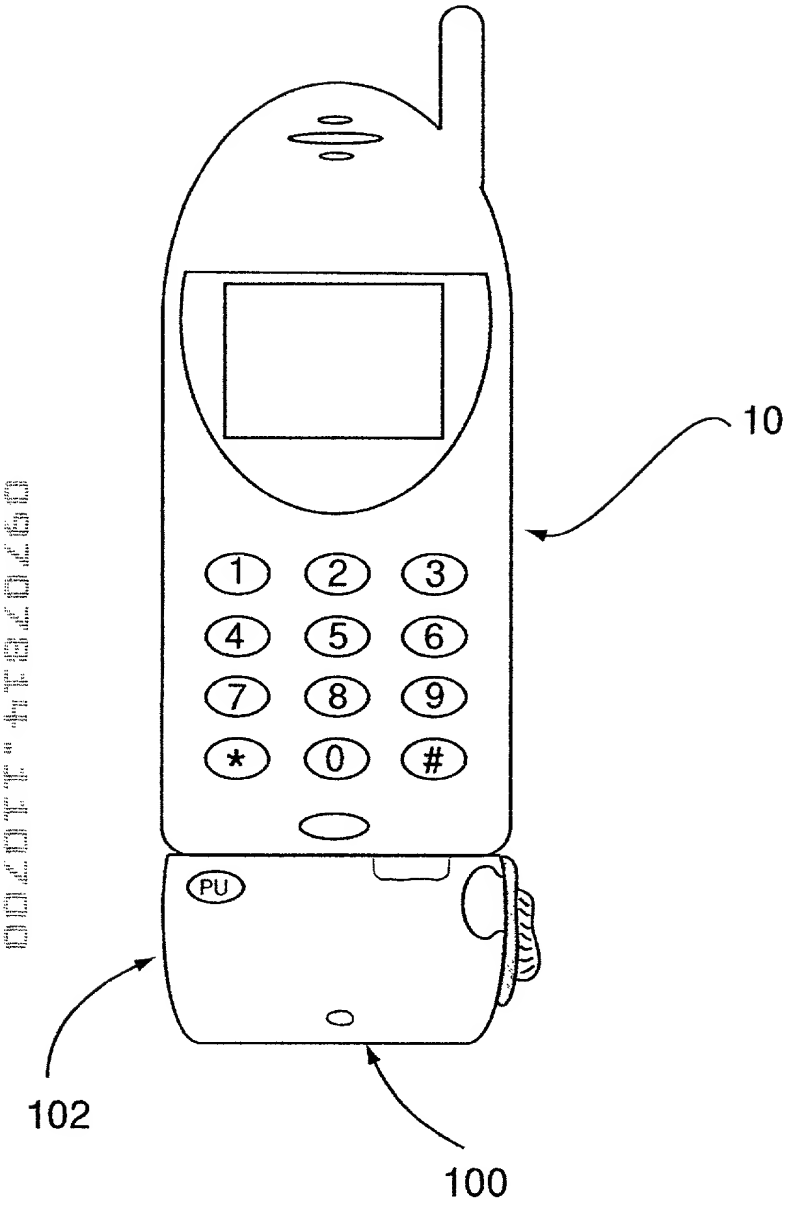


Figure 3A



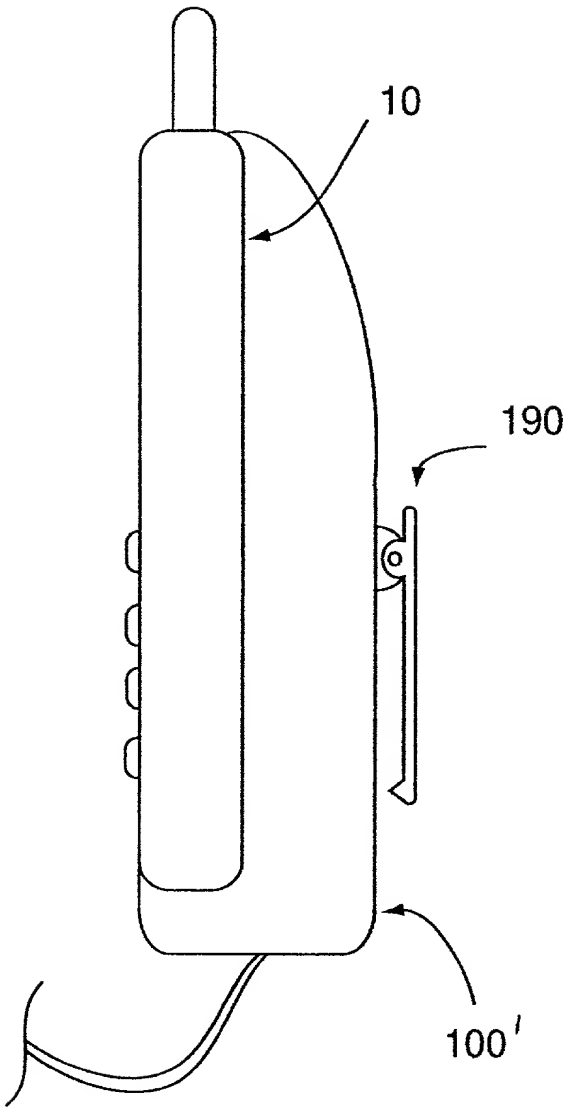


Figure 3B

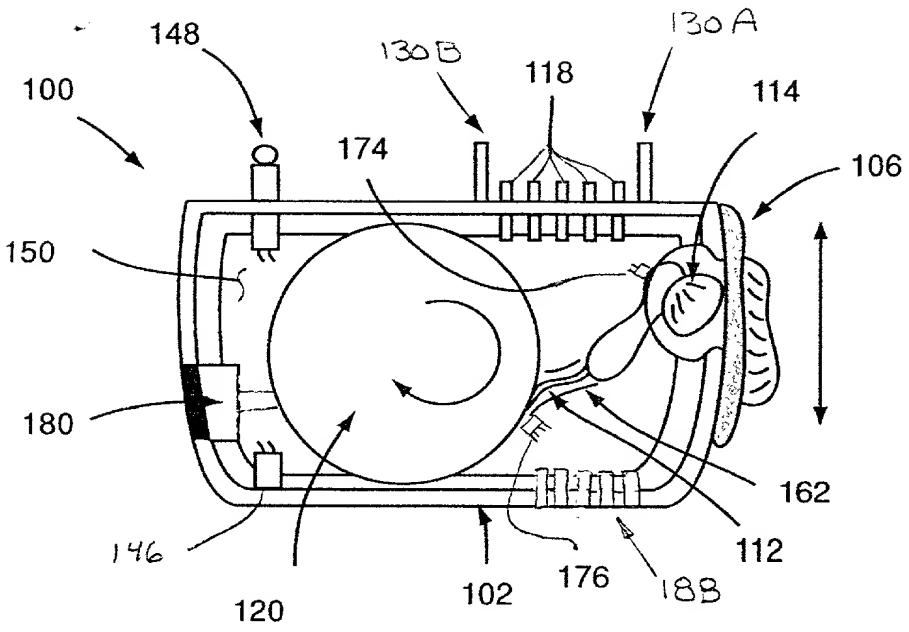


Figure 4

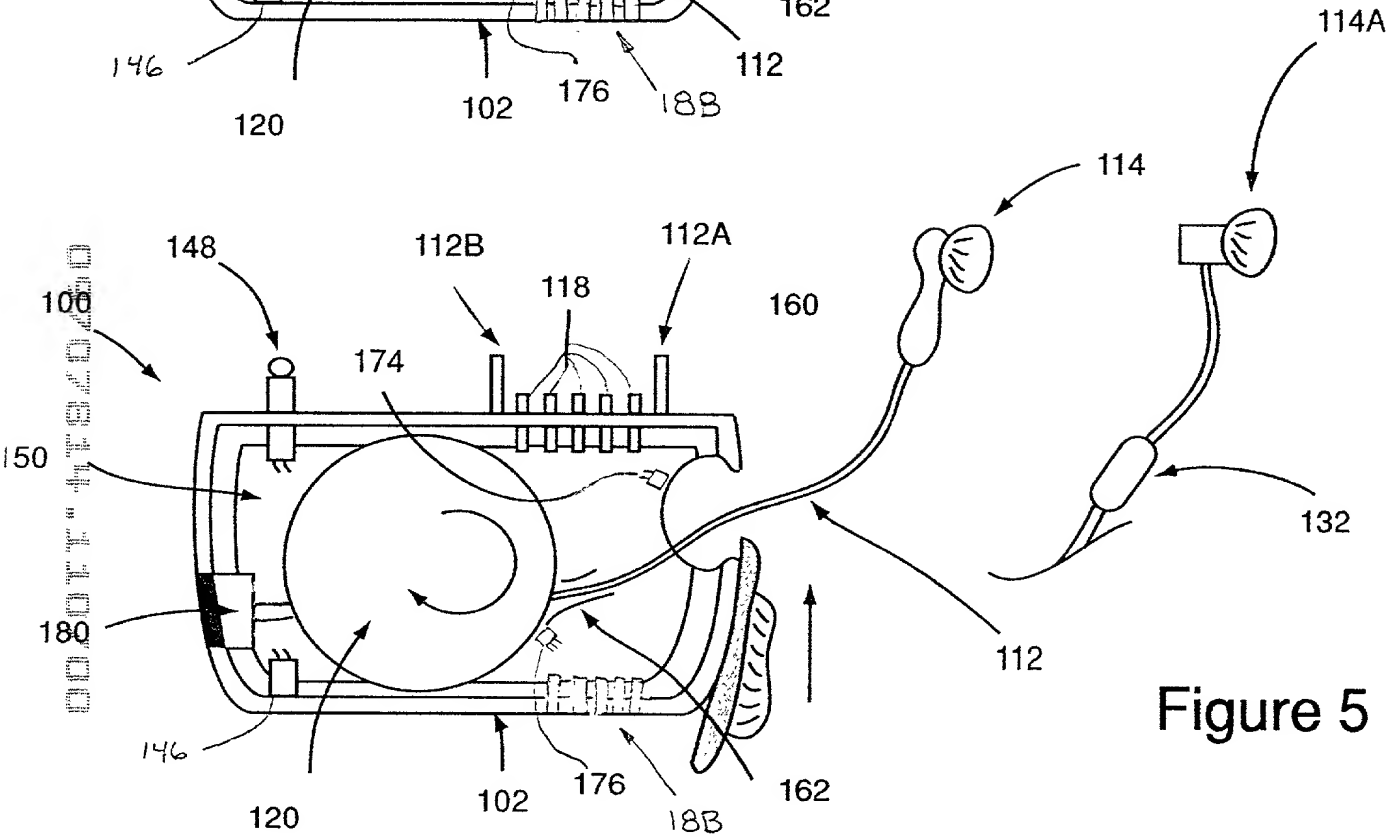


Figure 5

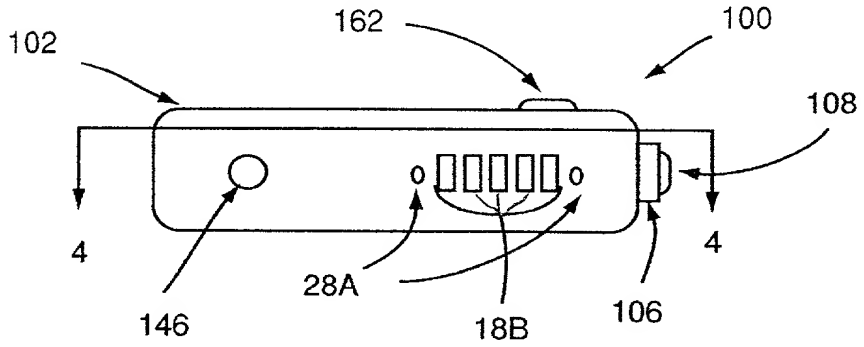


Figure 6

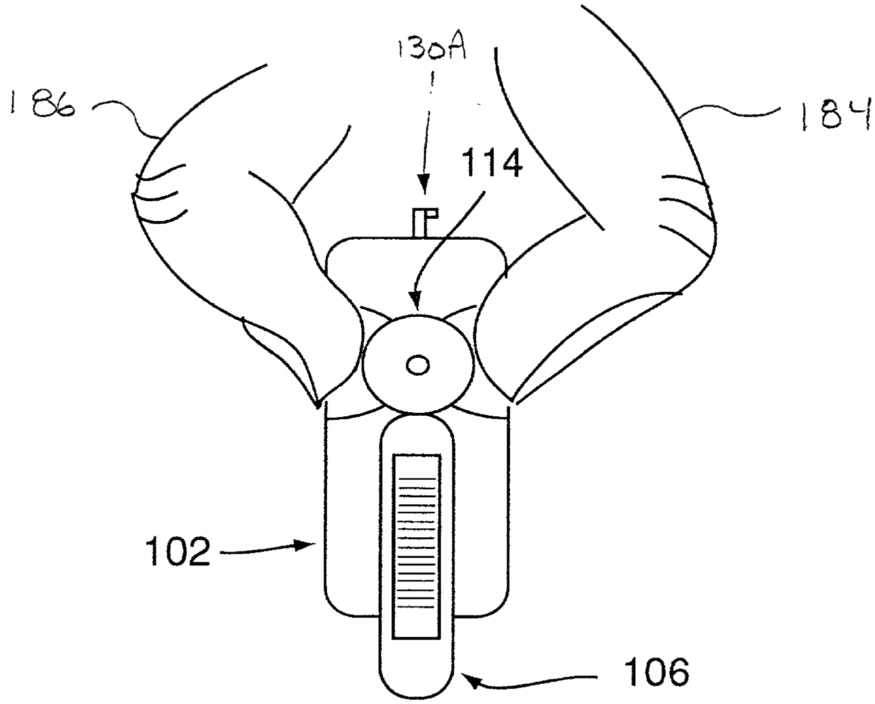


Figure 7

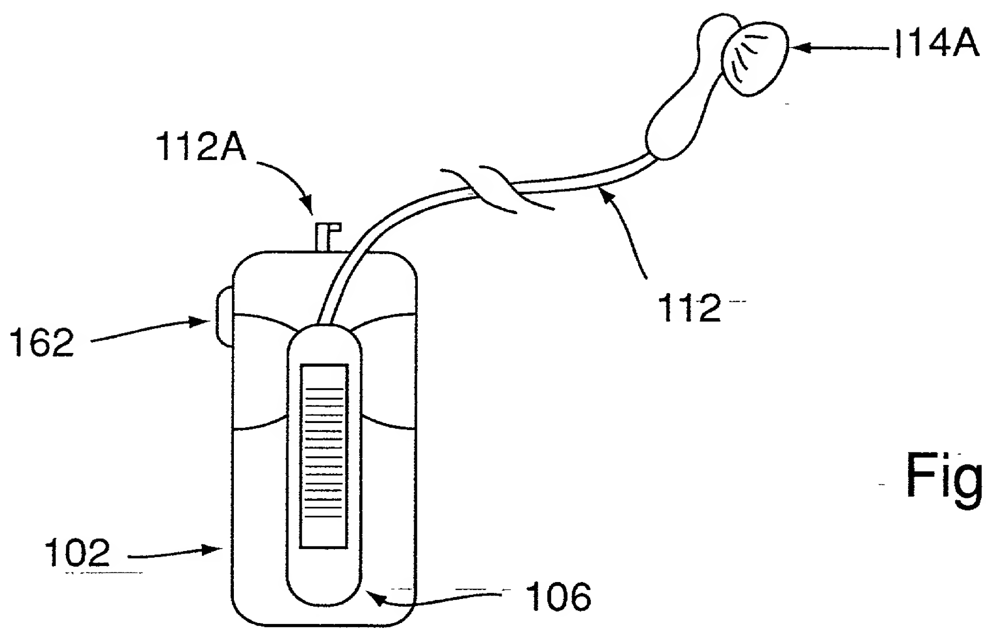
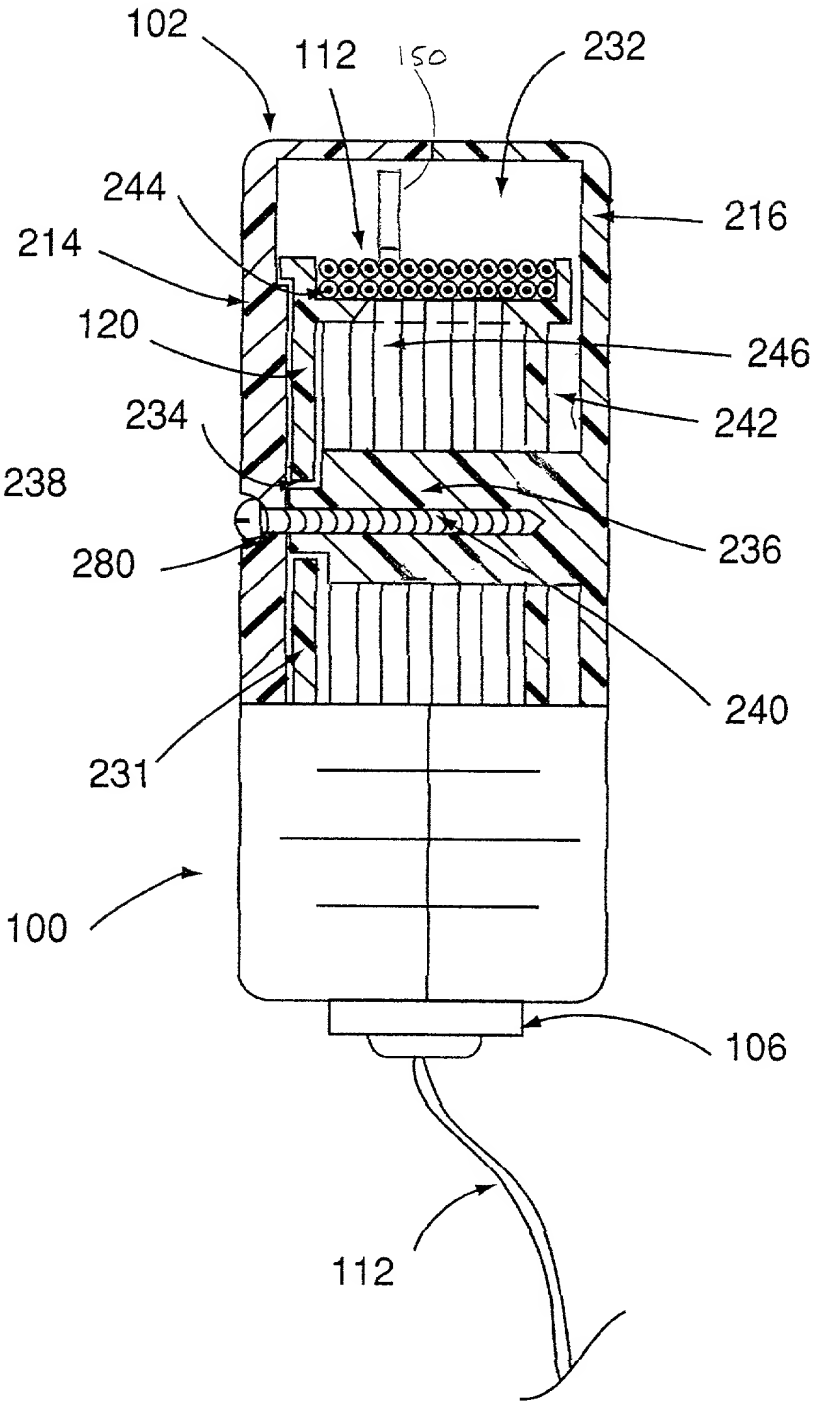


Figure 8

Figure 9


102
112
150
232
244
216
214
120
246
234
242
238
236
280
240
231
100
106
112

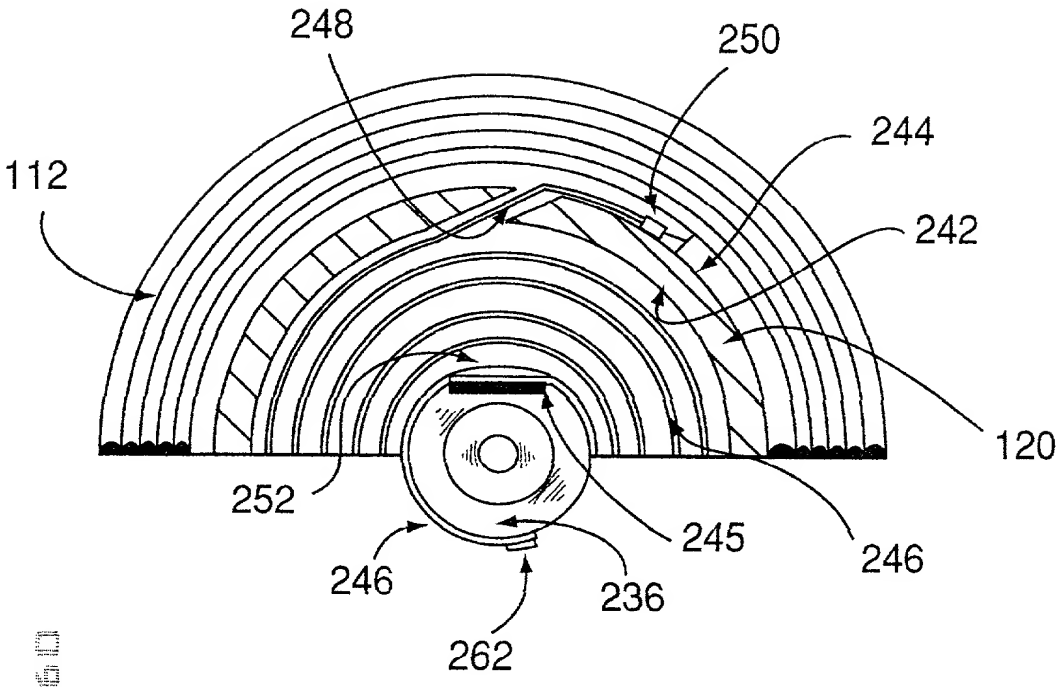


Figure 10

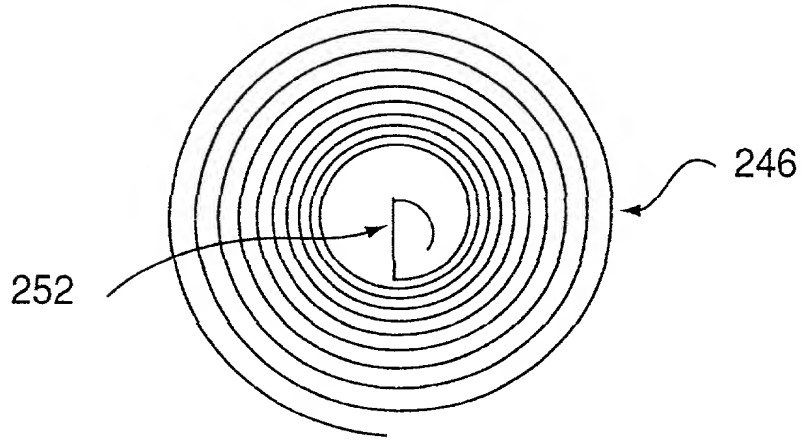


Figure 11

Docket No.
MORRISON 00.02

Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

CABLE RETRACTOR FOR AN ELECTRONIC DEVICE

the specification of which

(check one)

☒ is attached hereto.

☐ was filed on _____ as United States Application No. or PCT International Application Number _____

and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)			Priority Not Claimed
(Number)	(Country)	(Day/Month/Year Filed)	☒
(Number)	(Country)	(Day/Month/Year Filed)	☐
(Number)	(Country)	(Day/Month/Year Filed)	☐

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)

I hereby claim the benefit under 35 U. S. C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C. F. R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

Oliver W. Hayes	**Reg. No. 15,867**
Norman P. Soloway	**Reg. No. 24,315**
William O. Hennessey	**Reg. No. 32,032**
Steven J. Grossman	**Reg. No. 35,001**
Susan H. Hage	**Reg. No. 29,646**
Edmund P. Pfleger	**Reg. No. 41,252**
Dale Regelman	**Reg. No. 45,625**
Donald J. Perreault	**Reg. No. 40,126**

Send Correspondence to: **Steven J. Grossman**
Hayes, Soloway, Hennessey, Grossman & Hage, P.C.
175 Canal Street
Manchester, NH 03101

Direct Telephone Calls to: *(name and telephone number)*
Steven J. Grossman **(603) 668-1400** **Fax: (603) 668-8567**

Full name of sole or first inventor
Mark D. Morrison

Sole or first inventor's signature — Date: 11/7/00

Residence
666 West End Avenue, Apt. 19J, New York, NY 10025

Citizenship
USA

Post Office Address
666 West End Avenue, Apt. 19J, New York, NY 10025

Full name of second inventor, if any

Second inventor's signature — Date

Residence

Citizenship

Post Office Address